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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,906	01/29/2002	Chih-Jung Ni	MR3029-11	3703
4586	7590	04/14/2004	EXAMINER	
ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043			EL ARINI, ZEINAB	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/057,906

Applicant(s)

NI ET AL.

Examiner

Zeinab E. EL-Arini

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 26-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because it is not directed to a method of removing polymer residues as claimed herein. Correction is required. See MPEP § 608.01(b).
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: On pages 8, 9, "502" has been cited, however Fig. 5A does not include "502". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Election/Restrictions***

Applicant's election for claims 26-50 has been acknowledged, and claims 1-25 have been cancelled in view of applicant's amendment.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 26-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 26 and 37, "maintaining" is indefinite and confusing term, because the function of "maintaining" has not been recited. This is because the claim does not include what is going to be maintained.

In claim 26, "predetermined" is indefinite term.

In claims 35, 36, line 1, "first solvent" lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 26, 33-37, and 40-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's disclosure.

8. Applicant discloses that the conventional cleaning method comprises the method for removing polymer residues on sidewalls of metal lines, using the steps as claimed with the exception of the immersion time, a first time, second time, second immersion time, and third time. The times as claimed in claim 26 is inherent in the conventional method. See pages 2, 3, and Fig. 3.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 26, and 33-36 are rejected under 35 U.S.C. 102(a) as being anticipated by Lee (6,276,372).

Lee teaches a method for removing polymer residues from a surface of a substrate comprising immersing the wafer in a stripping solution, the stripping solution comprises a hydroxylamine compound, an alcohol amine compound, an anti-corrosion agent, dihydroxybenzene, and water for a time and temperature sufficient to remove the polymeric residues from the surface of substrate. The reference teaches rinsing the substrate with organic solvent, followed by deionized water rinse, and the drying the substrate. See the abstract, col. 1, line 61- col. 2, line 59, col. 3, lines 23-

51, col. 5, line 13- col. 6, line 5, examples 2 and 10, and the document in general. The times as claimed in claim 26 is inherent in Lee's process.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 43-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's disclosure in combination with Torek et al. (6,562,726 or 6,453,914).

Applicant admitted that the conventional method includes all limitations with the exception of the inert gas.

Torek et al ('726 or '914) teach a method for cleaning a wafer comprising using a cleaning solution, and then rinsing, and the rinsing bath may be agitated by introduction of a gas such as nitrogen, and drying the substrate.

It would have been obvious for one skilled in the art to use the gas to agitate the rinsing solution to improve the conventional cleaning process.

12. Claims 27-32, and 37-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in combination with Torek et al.'914.

Lee as discussed supra does not teach the time, providing gas to rinsing solution, and the second solvent as claimed.

Torek et al. as discussed supra teach using a gas such as nitrogen to agitate the rinsing solution. See col. 3, line 56- col. 4, line 57, and claims 1, 16-19, 28, 30-38, and the document in general.

It would have been obvious for one skilled in the art to use the gas taught by Torek et al. in the Lee's process to enhance the rinsing process and to enhance removing the stripping solution from the substrate. It would have been obvious for one skilled in the art to repeat the rinsing step to enhance the removing of the residues and the stripping and rinsing solution from the surface of the substrate. It would have been obvious for one skilled in the art to adjust the stripping time, the rinsing time to obtain optimum results. This is because the time is determined based on particular material being removed. See Lee, col. 5, lines 49-67.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeinab E. EL-Arini whose

telephone number is (571) 272-1301. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Zeinab E. EL-Arini*  
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Primary Examiner  
Art Unit 1746

ZEE  
04/12/04